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General Notes.

PETROGRAPHY.[1]

Petrography of the Bearpaw Mountains, Montana.—A second paper[2] by Weed and Pirsson[3] on the rocks of the Bearpaw Mountains describes several intrusive masses in this mountain group, a leucite-lava from Bearpaw Peak and a series of the dyke rocks occurring so abundantly throughout the region. One of the intrusive masses is just north of Wind Butte. It consists of an augite-syenite composed of ægirite-augite, microperthite and a few accessories, among which is sodalite. At the post-office of Lloyd is an intrusive mass of trachyte, that has altered the argillites through which it cuts. The rock consists of orthoclase phenocrysts in an aggregate of feldspar, hornblende, augite in two generations and biotite in two generations. The Structure of this groundmass is allotriomorphic, hence the rock is as closely allied to the syenite-porphyries as it is to the trachytes. Another intrusion near the trachyte is a nephelite-basalt containing biotite and sodalite. The highest point of the mountains, Bearpaw Peak, is composed of leucite-basalt lavas, breccias and tuffs. In the midst of these rocks is an intercalated flow of leucitite, in which occur phenocrysts of biotite, augite and leucite in a groundmass of the thickly crowded leucites in a glass base. An analysis of the rock gives the following result:

SiO_2	Al_2O_3	Fe_2O_3	FeO	MgO	CaO	Na_2O	K_2O	H_2O	TiO_2	Cl	P_2O_5	NiO	MnO	BaO	SrO	Total
46.51	11.86	7.59	4.39	4.73	7.41	2.39	8.71	3.55	.83	.04	.80	.04	.22	.50	.16	=99.73

The dykes of the region comprise syenite porphyries, leucite basalts, tinguaites and minettes. The tinguaites are mainly porphyritic rocks, but their phenocrysts are limited to the interiors of the dyke-masses, being absent near the peripheries. A tingauite porphyry from near Wind Butte is composed of aegirite, augite, alkali-feldspars, nepheline, cancrinite and small quantities of apatite, sodalite and fibrous hornblende. The pyroxenes present are made up of cores of an aggregate of colorless augites, surrounded by alternate zones of ægerite and augite. The large sanidine phenocrysts in the rock are surrounded by mantles of ægerine prisms, lying parallel to the banding planes of the feldspars.

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[1] Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.

[2] Cf. AMERICAN NATURALIST, 1896, p. 741.

[3] Amer. Jour. Sci., Vol. II, 1896, p. 136 and 188.

This fact, together with the absence of phenocrysts near the peripheries of the dyke indicates to the author that the large feldspars are not of intratelluric origin, but that, on the contrary, they were formed in place. The paper closes with descriptions of a quartz tinguaite-porphyry and several pseudoleucite-sodalite-tinguaites.

Rocks of the Laurentian area north of Montreal.—Adams[4] has examined carefully the geology of the Southern portion of the Archean protaxis of North America that lies in the western portion of the Province of Quebec. The rocks occurring in the area studied belong to the Grenville series and to the Fundamental gneiss. The former are present in a series of bands of alternating gneisses, quarzites, limestones and anorthosites, with occasional bands of pyroxene amphibolites, pyroxene gneisses, etc. All these rocks have been described[5] in other papers, but not as fully as they are described in this one.

The Rocks of the Leucite Hills.—Kemp[6] describes the Leucite Hills in southwestern Wyoming as the remains of a volcanic crater formed in later Tertiary time. These hills and several of the buttes in their vicinity are composed of flows of what was once a very fluid lava followed by upwellings of a more viscous magma. The rocks of the different flows vary in character. Some are extremely rich in leucite. In others sanidine replaces this mineral, and in specimens obtained from Black Rock butte phenocrysts of augite and olivine are plentiful. The rocks in which leucite is most abundant consist almost exclusively of this mineral and biotite. In the feldspathic rocks the quantity of leucite decreases as the sanidine increases. Augite is also present in these varieties sometimes as inclusions in the sanidine and at other times as large colorless crystals surrounded by rims of biotite. The rock of Pilot Butte, about 22 miles southwestern of the Leucite Hills, consists of large colorless crystals of augite and plates of light brown mica in a groundmass composed of a felt of augite microlites and a few leucites in a glass matrix. It is evidently closely related to the leucite rocks (leucite-phonolites) though mineralogically an augitite.

The Rocks of the Columbretes, Spain.—The rocks forming the little group of islands off the east coast of Spain, known as the Columbretes, are trachytes, trachytic-phonolites, tephritic trachytes, basalts and palagonite tuffs according to Becke.[7] The feldspar of the tra-

[4] Geological Survey of Canada. Ann. Rep., Vol. VIII. Pt. J.

[5] AMERICAN NATURALIST. 1897, p. 564, 1896, p. 300 and 579.

[6] Bull. Geol. Soc. Amer., Vol. 8, 1897, p. 169.

[7] Min u. Petrog. Mitth., XVI, p. 157 and 308.

chytes is sanidine mixed with a plagioclase rich in calcium. The hornblende is a yellowish-brown basaltic variety with a positive angle *c* v *C*, the only instance of a basaltic hornblende with this orientation. The different phases of the trachyte vary in composition as noted below and in structure. The basalts and tuffs present no unusual features. The rocks offer a good illustration of a petrographical province, the basalts representing the most basic members and the phonolites the most acid ones. The tephritic trachytes, with their small percentage of leucite are intermediate rocks. Analyses of the phonolitic (I) and the tephritic (II) trachytes and of the basalt (III) follows:

	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	FeO	MgO	CaO	Na_2O	K_2O	H_2O	P_2O_5	SO_3	CO_2	Cl	Total
I.	55.93	.42	21.83	3.62	.34	.61	2.54	7.84	6.01	.72	.22	.08	.03	.51	= 101.17
II.	53.12	.25	20.48	5.13	1.50	1.88	4.29	6.20	4.88	2.25	.43	.14		.28	= 100.59
III.	47.54	tr	17.70	5.19	6.20	5.94	9.12	4.01	1.43	.72	.62	tr	.10	.07	= 98.64

The chemical relations of these rocks to one another are represented graphically by means of a triangle whose angles represent 100 per cent. each of Na, Ca and K. The discussion upon which this method of representation is based cannot be entered upon in this place.

The dykes associated with the tonalite of Meran in the Tyrol.—Grubenmann[8] gives brief descriptions of the dyke rocks connected with the tonalites near Meran. These are quartz-mica porphrites, tonalite-porphyrites, tonalite-pegmatites, diabases and hornblende-kersantites. The pegmatites consist of plagioclase, microcline, quartz and muscovite. Where in contact with gneiss, this rock has developed in it andalusite and garnet.

Petrographical Notes.—The correctness of the analyses of the granular rock of Rongstock in the Bohemian Mittelgebirge having been called into question by Lang a new analysis has been recent published by Hibsch.[9] The results of this confirm the analysis first published.

Lyons[10] has analyzed a large number of specimens of the soils originating from the decomposition of Hawaiian lavas, and a series of the lavas from which they were derived. The results show that in the incipient weathering of the lavas there is a loss of silica, titanic acid, manganese, soda, potash and copper. The quantity of calcium present remains unchanged, while the percentage of magnesia increases. Upon further alteration magnesium, calcium and phosphoric acid are almost completely lost. In the soils, however, there is a larger proportion of calcium and potassium present than in the 'rotted' lavas. This increase is ascribed to the action of plants and animals.

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[8] Ib., XVI, p. 185.

[9] Ib., XV, p. 487.

[10] Amer. Jour. Sci., Vol. II, 1896, p. 421.

In an article in the Ponza Islands Schneider[11] describes the geological relation of the rhyolites, the trachytes, the pitchstones and the tuffs of the first two named rocks occurring there. His conclusions are questioned by Sabatini.[12]

BOTANY.[13]

New Species of Fungi from Various Localities.—(Continued from p. 343.)—HYPOXYLON VERNICOSUM E. & E. On dead wood. Sent from Ohio by Mr. A. P. Morgan as *Hypoxylon marginatum* (Schw.).

Stroma flattish-pulvinate, 2–3 x 1 cm. and 3–4 mm. thick, black and varnished outside and the uneven surface pitted all over by the papilliform ostiola, surrounded by an annular depression as in *H. marginatum.* Perithecia cylindrical, extending down nearly to the bottom of the stroma and about $\frac{1}{3}$ mm. diam. Asci cylindrical, 75–80 x 4μ, short stipitate, 8-spored. Sporidia oblong-elliptical, 6–7 x 3–3$\frac{1}{2}\mu$. Differs from *H. marginatum* (Schw.) in its varnished stroma and cylindrical perithecia.

PEZIZA (HUMARIA) TRACHYDERMA E. & E. On decaying wood partly buried in the soil, Valentine, Nebraska, May, 1896 (Rev. J. M. Bates, No. 416).

Sessile, shallow cup-shaped, 2–4 mm. diam., carnose, thinning to the acute, spreading margin, wood color when fresh, the furfuraceo-verrucose exterior remaining so when dry, but the hymenium becoming nearly liver color. Margin spreading when fresh, narrowly involute when dry. Asci cylindrical, 200 x 12–14μ, truncate above. Paraphyses thickened at the lips. Sporidia uniseriate, oblong-elliptical hyaline, smooth, 14–18 x 10–12μ.

Resembles somewhat a diminutive *Peziza vesiculosa,* but more open and shallower.

PHIALEA ARENICOLA E. & E. On sandy ground near "Blackbird Landing Bridge," Delaware, June, 1896 (Commons, No. 2784).

Stipitate, concave, becoming plane or even slightly convex, disk dull orange, 2–3 mm. broad, outside lighter, uneven, subpruiose. Stipe

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[11] Min. u. Petrog. Mitth., XVI, p. 65.

[12] Ib., p. 530.

[13] Edited by Prof. C. E. Bessey, University of Nebraska, Lincoln, Nebraska.